

5 ABSTRACT**REFERENCE PHASE AND AMPLITUDE ESTIMATION FOR
COHERENT OPTICAL RECEIVER**

10 An optical receiver demodulates optical orthogonal frequency division multiplexed
signals and generates a number of subcarrier reference signals, each for demodulating
a frequency channel of the frequency division multiplexed signals. It compensates for
degradations in the generated reference signals by averaging a number of estimates
15 derived from different inputs to make the references more resilient to degradations. It
can encompass time averaging to compensate for amplification noise, and frequency
averaging of phase drift estimation to compensate for phase drift caused by reduced
source coherence. It can enable longer system reach and/or increased optical power
margins by means of better system resilience to amplification noise and reduced source
coherence. The bit error rate can be reduced, and/or the capacity can be increased by
20 increasing bit rate or introducing more frequency channels.